Remarks

The Office Action mailed September 15, 2003 has been received and reviewed. Claims 28-47 and 49-66 are pending. Applicants note with appreciation the allowance of claims 36, 37, 52-54, and 63. Reconsideration and withdrawal of the rejection of claims 28-35, 38-47, 49-51, 55-62 and 64-66 is respectfully requested.

The 35 U.S.C. §112, First Paragraph, Rejection

The Examiner rejected claims 40-45 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection.

Specifically, the Examiner asserted that "[o]ne cannot readily envision the amino acid sequence of the polypeptide described in the claim if that polypeptide does not have the sequence of SEQ ID NO:2. One cannot make an antibody to a polypeptide one does not have or for which one does not have the sequence" (page 2 of the Office Action mailed September 15, 2003). Applicants respectfully disagree.

First, Applicants request clarification of the Examiner's rejection of claim 45. Claim 45 is drawn to "[a]n isolated and purified antibody to a *Candida albicans* polypeptide encoded by a polynucleotide having SEQ ID NO:1, wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells." The polynucleotide SEQ ID NO:1 encodes the polypeptide SEQ ID NO:2 (see page 3, lines 7-11 of the specification). The Examiner had previously acknowledged that "an antibody to SEQ ID NO:2 . . meet[s] the written description and enablement provision of 35 U.S.C. 112, first paragraph" (see page 3, second full paragraph, of the Office Action mailed March 21, 2003). Thus, in view of the Examiner's statement that antibodies to SEQ ID NO:2 meet the written description and enablement provision of 35 U.S.C. 112, first paragraph, Applicants do not understand the inclusion of claim 45 in this rejection. Further, Applicants submit that the specification provides adequate written description

for SEQ ID NO:1, a polynucleotide that encodes the polypeptide SEQ ID NO:2 and for antibodies that bind to the polypeptide encoded by SEQ ID NO:1.

Further, Applicants respectfully submit that the present specification provides adequate written description for the antibodies of claims 40-44 and for the polypeptides to which the antibodies of claims 40-44 bind. To meet the written description requirement of 35 U.S.C. §112, first paragraph, the application "must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, i.e., what is now claimed." M.P.E.P. §2163. Factors to be considered in determining whether there is sufficient evidence of possession include the level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, the method of making the claimed invention, *or some combination of such characteristics*" (see M.P.E.P. § 2163, (emphasis added)).

Claims 40-44 are drawn to antibodies that bind "to a polypeptide with integrin-like motifs encoded by a polynucleotide that hybridizes to DNA complementary to DNA having SEQ ID NO:1 under stringency conditions of hybridization in buffer containing 5x SSC, 5x Denhardt's, 0.5% SDS, 1 mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C, wherein the polypeptide with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to form a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence having a single tyrosine residue, and wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells."

Applicants submit that the specification provides adequate written description of polypeptides with integrin-like motifs encoded by a polynucleotide that hybridizes to DNA complementary to DNA having SEQ ID NO:1 under stringency conditions of hybridization in buffer containing 5x SSC, 5x Denhardt's, 0.5% SDS, 1 mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C (see page 5, lines 7-14, of the specification). Applicants submit

that the specification provides adequate written description for polypeptide with integrin-like motifs that contain an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to form a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence having a single tyrosine residue (see page 6, lines 5-11, of the specification). Applicants also submit that the specification provides adequate written description for antibodies to these polypeptides, wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells (see page 7, lines 14-19 of the specification). Thus, Applicants respectfully submit the present specification conveys with reasonable clarity to those skilled in the art that, as of the filing date, Applicants were in possession of the invention of claims 40-44. Applicants respectfully maintain that they have satisfied the written description requirement for claims 40-44.

For the reasons discussed above, withdrawal of the rejection of claims 40-45 under 35 U.S.C. §112, first paragraph, is respectfully requested.

The 35 U.S.C. §102 Rejection

The Examiner rejected claims 28-35, 38-47, 49-51, 55-62, and 64-66 under 35 U.S.C. §102(b) as being anticipated by Meinke et al. (Ped. Res., 35(4/2):187A, #1106, April 1994). This rejection is respectfully traversed.

Applicants respectfully submit that the teachings of Meinke et al. do not set forth each and every element of claims 28-35, 38-47, 49-51, 55-62, and 64-66. The Examiner has based this rejection on the doctrine of inherency. Specifically, it appears that this rejection is based on the allegedly inherent properties of the OKM1 antibody taught by Meinke et al. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." M.P.E.P §2112 (emphasis in original). "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." M.P.E.P §2112

(emphasis in original). It is respectfully submitted that the Examiner has not met her burden of providing an adequate basis in fact and/or technical reasoning to support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the cited documents.

Applicants respectfully submit that Meinke et al. do not teach or make obvious antibodies that "block *Candida albicans* adhesion to epithelial and/or endothelial cells" (independent claims 28, 34, 38, 40, and 45 and dependant claims 29-31, 35, 39, 41-44, 46, 47, and 49-66). While acknowledging that "the reference does not disclose that monoclonal antibody OKM1 inhibited binding of *C. albicans* to endothelial cells or epithelial cells," the Examiner, however, asserted that "the skilled artisan would reasonably have expected that it does" (page 3 of Office action mailed September 15, 2003).

To substantiate the assertion that the skilled artisan would reasonably have expected the OKM1 monoclonal antibody to inhibit the binding of *C. albicans* to endothelial cells or epithelial cells, the Examiner cited the teachings of Forsyth et al. (Infect. Immunity 70(2):517-527 (2002)), that the OKM1 antibody inhibited the binding of IL-2 activated mouse lymphocytes (mIAL) or CD11b-expressing 3T3-19 fibroblasts to *C. albicans* hyphae. Applicants note, as taught by Forsyth et al. (see abstract), that the OKM1 antibody binds to the Mac-1 antigen (also called CD11b/CD18 or α_M/β_2), an antigen present on the surface of IL-2 activated lymphocytes. Forsyth et al. further teach that the binding of the OKM1 antibody to the surface of lymphocytes inhibits the adhesion of the lymphocytes to *C. albicans* yeast hyphae (see Forsyth et al., abstract). Applicants respectfully submit that the antibodies of the instant claims bind to polypeptides comprising an integrin-like protein present on the surface of the yeast *C. albicans*. The target polypeptide for binding of the OKM1 antibody taught in Meinke et al. is a human polypeptide. The target polypeptide for binding by the antibodies of the instant claims is a yeast polypeptide. Given this significant phylogenetic difference between these targets, the skilled artisan could not reasonably have expected that the antibody OKM1 would bind to polypeptides on the surface of *C. albicans* ***and*** inhibit the binding of *C. albicans* to endothelial cells or epithelial cells.

As further reasons to substantiate the rejection of the claims under the doctrine of inherency, the Examiner cited the teachings of Vetvicka et al. (J. Clin. Invest. 98:50-61 (1996)), that the OKM1 antibody "binds to a lectin site of CD11b located COOH-terminal to the I-domain binding site for iC3b . . . and yeast express iC3b," and the teachings of Hostetter (Trends in Microbiology 4(6):242-6 (1996)), that "*C. albicans* expresses αint1 and binds iC3b synthesized by epithelial cells." Applicants respectfully submit that merely because general domain structures are present in both the polypeptide bound by the OKM1 antibody and the yeast polypeptides bound by the claimed antibodies, one cannot conclude that the OKM1 antibody is the same as the claimed antibodies.

Applicants also submit that Meinke et al. do not teach or make obvious antibodies that "block *Candida albicans* adhesion to epithelial and/or endothelial cells by at least 30%" (claims 30, 35, 39, 50, 53, and 56) or antibodies that "block *Candida albicans* adhesion to epithelial and/or endothelial cells by at least 50%" (claims 31, 44, 47, 51, 54, 55, and 57). The Examiner asserted that "in light of the evidence . . . that the OKM1 antibody almost completely inhibited binding of mIAL to *C. albicans* hyphae . . it reasonably appears that OKM1 would inherently have possessed the ability to block . . . *C. albicans* binding by at least 50%" (page 3 of Office Action mailed September 15, 2003). In view of the discussion above, noting that the OKM1 antibody binds to an antigen present on the surface of IL-2 activated lymphocytes, one cannot reasonably conclude that the OKM1 antibody would inherently have possessed the ability to block *C. albicans* binding by at least 50%.

Further, Applicants submit that Meinke et al. do not teach or make obvious antibodies that block "adhesion to epithelial and/or endothelial cells by *Candida albicans* selected from a morphological stage of *Candida albicans* development selected from the group consisting of blastospores, germ tubes, and hyphae" (claims 46 and 61-66). In supporting the rejection of claims 46 and 61-66, the Examiner asserted "***if*** the antigen that OKM1 binds is present on hyphae and mature *C. albicans*, it is more likely than not that other developmental stages (blastopores and germ tubes) also present the OKM1 antigen such that it would be bound by the antibody" (page 3 of Office Action mailed September 15, 2003) (emphasis added).

Applicants respectfully submit that this statement is inappropriate conjecture on the part of the Examiner. The Examiner is invited to provide appropriate basis in fact and/or technical reasoning to support her conclusion that the antigen bound by the OKM1 antibody is more likely than not present on *Candida albicans* from the morphological stages of blastospores, germ tubes, or hyphae.

Finally, Applicants submit that Meinke et al. do not teach or make obvious antibodies to polypeptides consisting of SEQ ID NO:3 (claims 32 and 33). In supporting the rejection of claims 32 and 33 as anticipated by Meinke et al. under the doctrine of inherency, the Examiner asserted that Forsyth et al. teaches that "OKM1 binds a lectin site" and asserted that Thronton et al. (J. Immunol. 156:1235-1246 (1996)) teaches that this lectin site maps "to an area C-terminal to the I-domain apparently near the divalent cation-binding region." From these two assertions, the Examiner concluded that, "[s]ince SEQ ID NO:3 comprises the I-domain as well as the first cation-binding site (SEQ ID NO:4), ***it reasonably appears*** that SEQ ID NO:3 comprises the lectin site ***and, therefore*** the epitope bound by OKM1" (page 4 of Office Action mailed September 9, 2003) (emphasis added). Applicants respectfully submit that this is inappropriate conjecture. Merely because general domain structures, such as the I-domain and a cation-binding region, are present in both the polypeptide bound by the OKM1 antibody and the polypeptide consisting of SEQ ID NO:3, one cannot conclude that the antigenic epitope recognized by the OKM1 antibody is present on the polypeptide consisting of SEQ ID NO:3.

In view of the above discussion, reconsideration and withdrawal of this rejection under 35 U.S.C. §102(b) is respectfully requested.

Amendment and Response
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Summary

It is respectfully submitted that the pending claims 28-47 and 49-66 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
HOSTETTER et al.

By
Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
Phone: (612) 305-1220
Facsimile: (612) 305-1228
Customer Number 26813

December 15, 2003
Date

By: Ann M Mueting
Attorney: Ann M. Mueting
Reg. No. 33,977
Direct Dial (612) 305-1217

CERTIFICATE UNDER 37 CFR §1.8:
The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 15th day of December, 2003, at 4:55 PM (Central Time).

By: Nancy A. Johnson
Name: Nancy A. Johnson